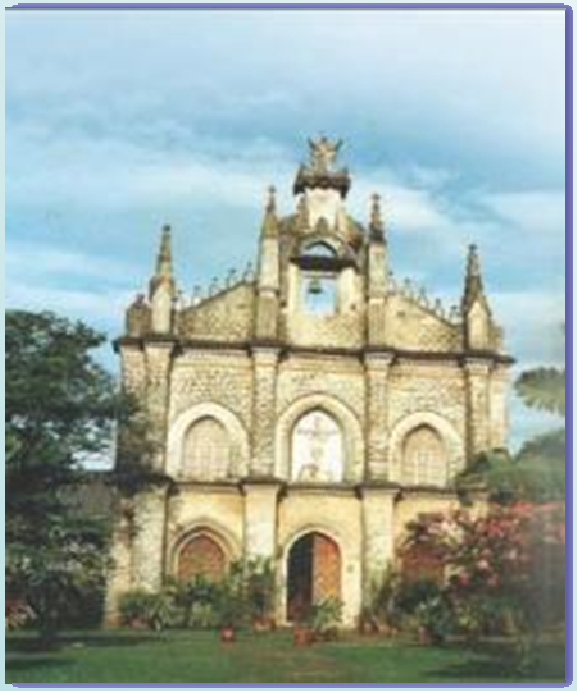
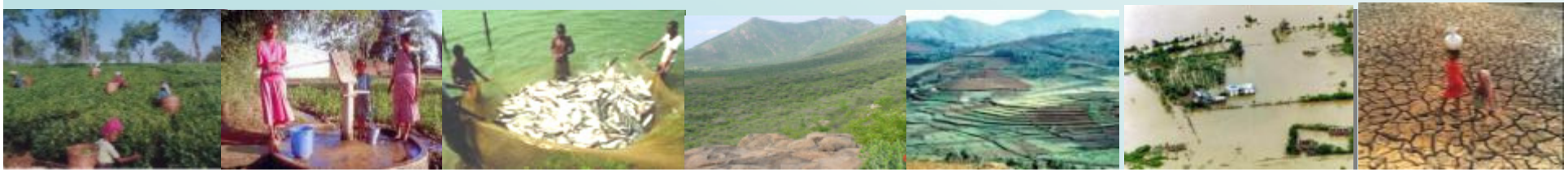
Societal Applications of Indian Space Programme: An Update



53rd Session of UNCOPUS - Vienna

June 9-18, 2010



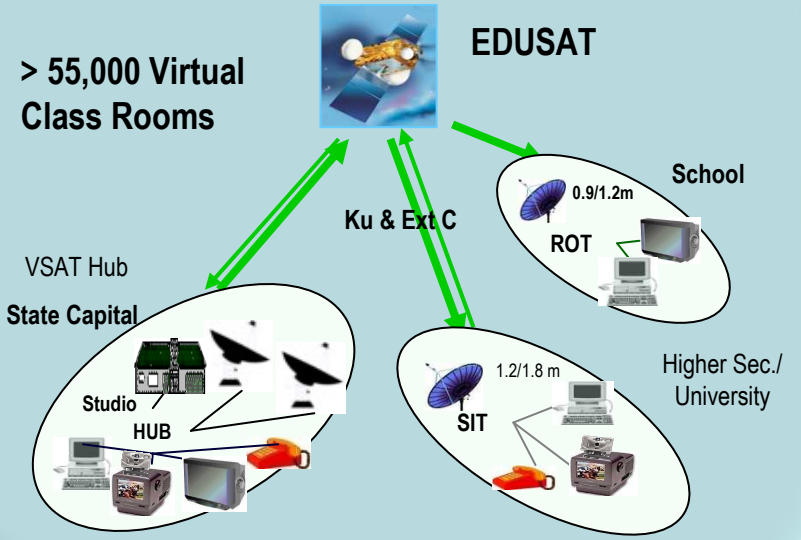
Space technology for Healthy & Knowledgeable Society

Literacy:
Total Population : 1150 Million
Literacy : 65%

Medical consultants:
Urban - 75%
Semi Urban - 23%
Rural - 2%

Tele-Education

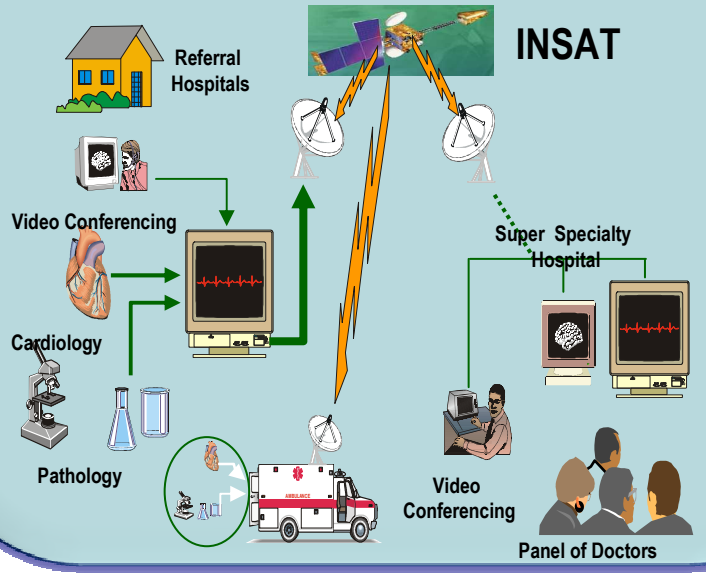
Training & Dev. Communication Channel (1995)
Jhabua Dev. Communications Project (1996)
GRAMSAT Pilot Project (Current)
EDUSAT Utilization Prog (Current)



Tele-Medicine

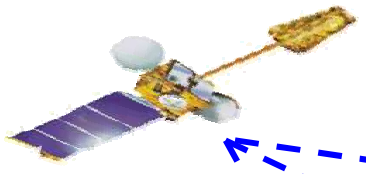
382 Hospitals
306 Dist/ Rural Hospitals
60 Specialty Hospitals
16 Mobile Units

> 650,000 Patients treated



Village Resource Centre (VRC)

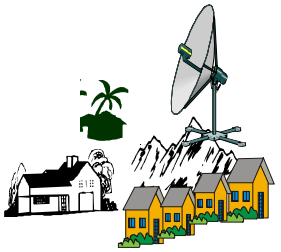
For Empowering Rural Community



VRC Coverage:	
States/ UT	: 22
No. of VRC	: 473
Expert Centres/Hospitals	: 75
No. of Programmes	: 6000

Single Window Delivery Mechanism for:

- Information on Land and Water Resources
- Dissemination of Weather & Disaster info
- Tele education & Tele healthcare services
- Advisories on Agriculture, Fisheries
- Enhanced livelihood opportunities
- Enabling the villagers with info on Price, Market, Pests, Diseases, Livestock, Govt. schemes, job opportunities, etc.

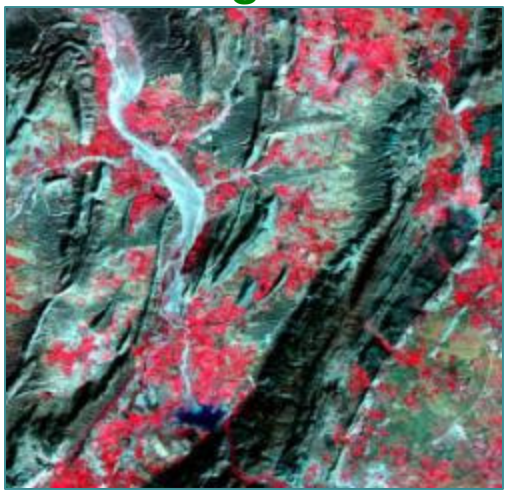


Opening doors
for a
Fulfilling Life in Rural India

Groundwater Exploration & Recharge

Rajiv Gandhi National Drinking Water Mission

- 1.6 billion (28%) lack safe drinking water; 5 M die per year
- 1.5 billion people depend on GW for drinking
- GW Pumping > natural recharge @ 160 billion m^3/year



Yield 400-800 Depth <30m

Yield 200-400 Depth 30-80m

Yield 100-200 Depth 30-80m

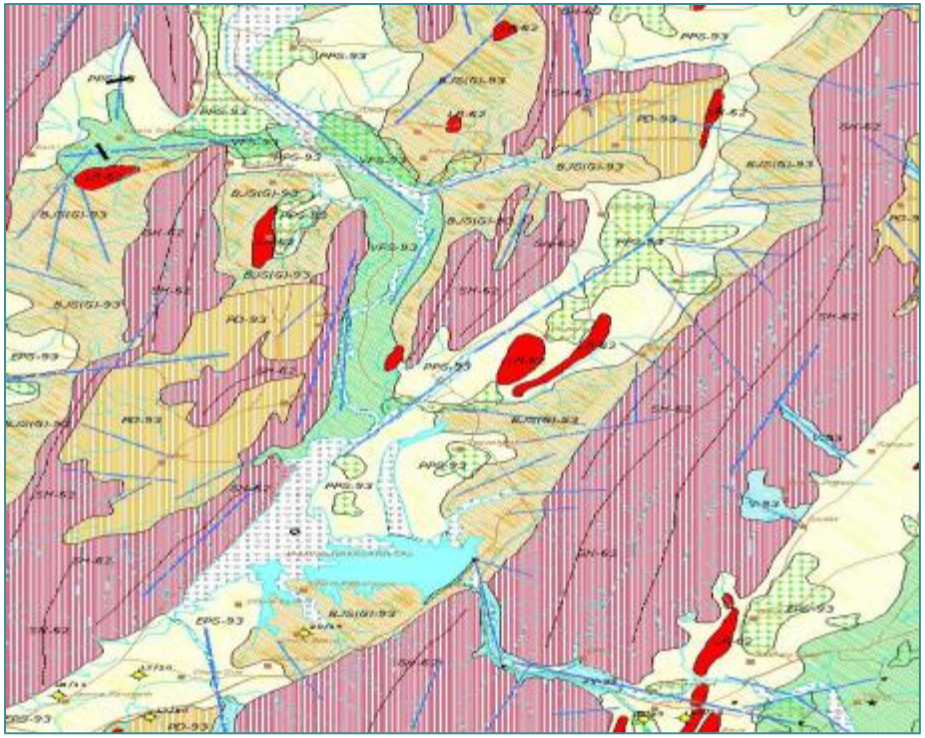
Yield 50-100 Depth 30-80m

Yield 10-50 Depth >80m

Prospects limited to valleys

Run-off zone (Yield in lpm)

- 14 States completed; work is in progress in 6 states
- 275,000 + Bore wells drilled with 90% + Success rate
- 9,000 + Recharge structures constructed

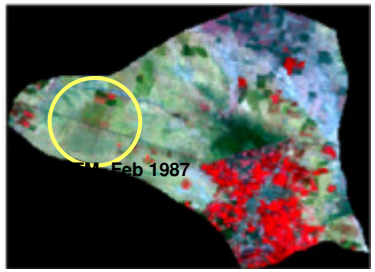


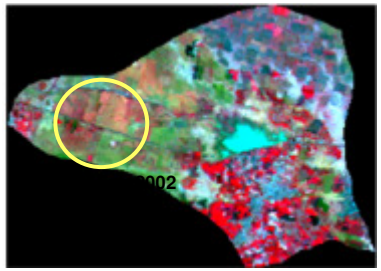
Wasteland Inventory

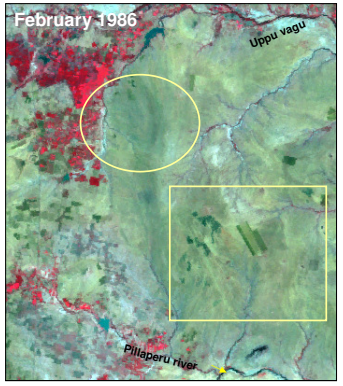
A Targeted Rural Development Programme: with village & watershed boundaries

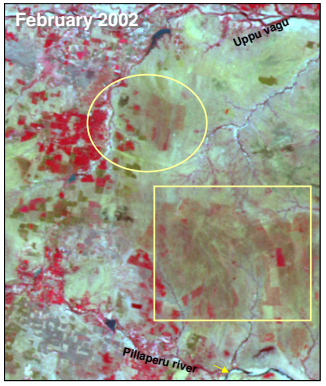
- National Wasteland Inventory Project (1986 - 2000)
- National Wasteland Updation Mission (2003 - 2004)
- National Wasteland Updation using 2006 - Ongoing
- Coverage : Entire India in 1: 50k scale
- No. of Wasteland categories : 28
- Wasteland Change Analysis project using 2009 data taken up

- **63. 85 mha -20.17% of India's TGA (1986 -2000 data)**
- **55.27 mha - 17.45% of India's TGA (2003 data)**
- **46.43 mha - 14.81% of India's TGA (2005 data)**





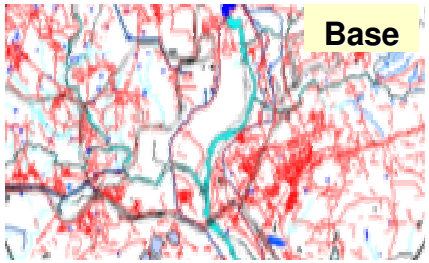


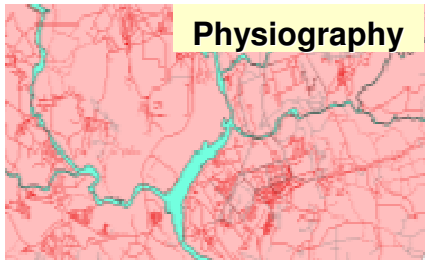


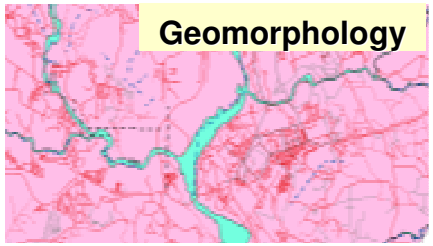
National Urban Information System (NUIS)

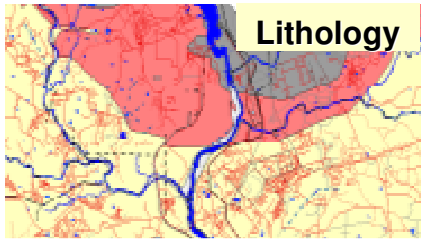
Towards administering Towns/ Cities in a Scientific Manner

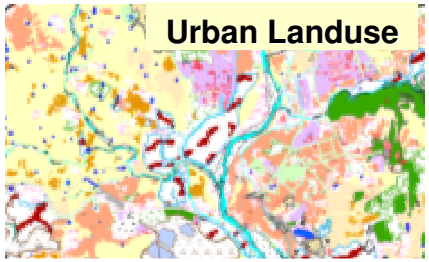
- Multi scale (10K, 2K,1K) hierarchical Urban Geospatial database
- For supporting Urban Planning, Infrastructure development, e-governance,

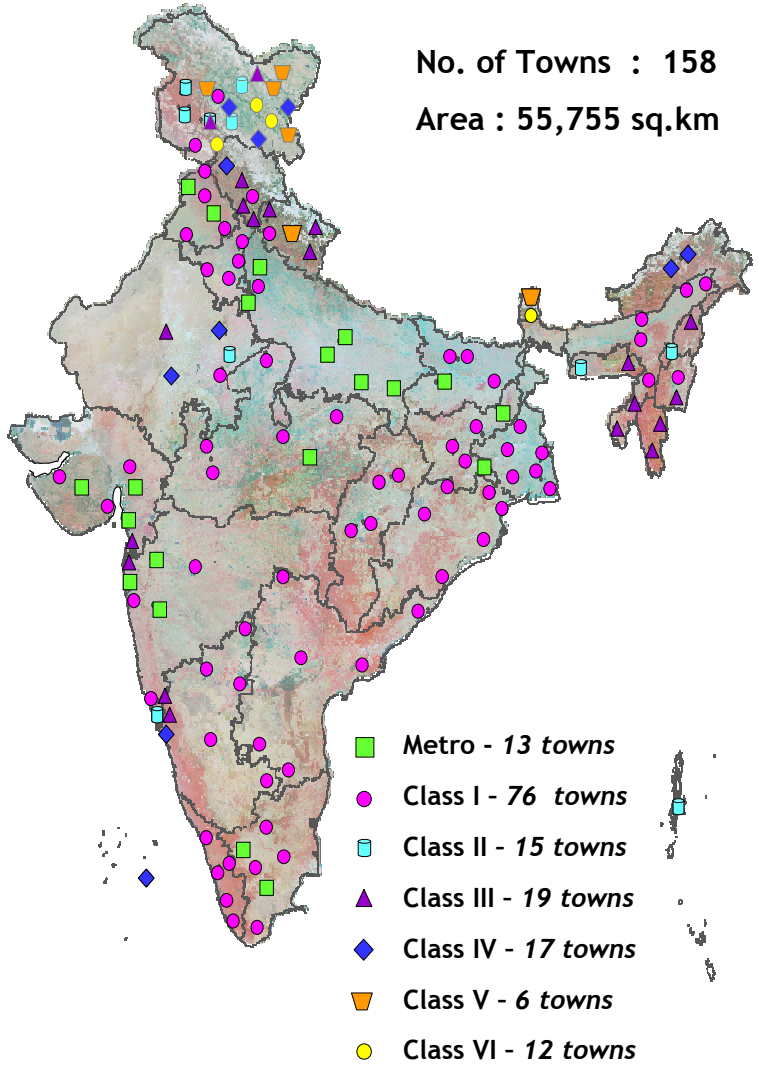








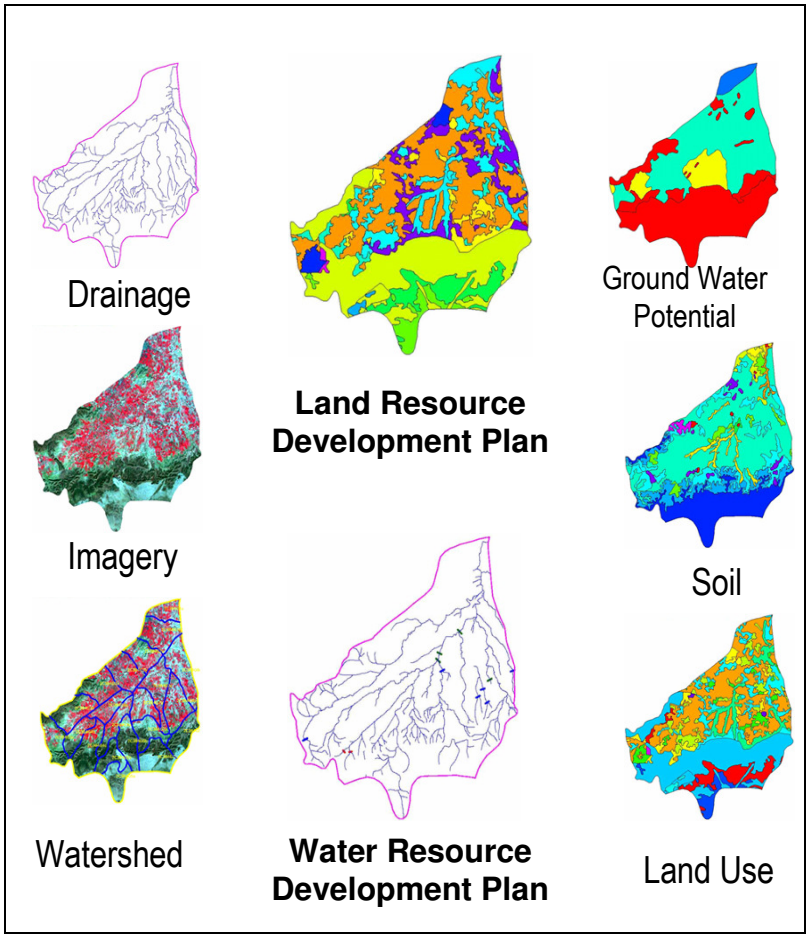




Improving Productivity in Drylands

Integrated Mission for Sustainable Development (IMSD)

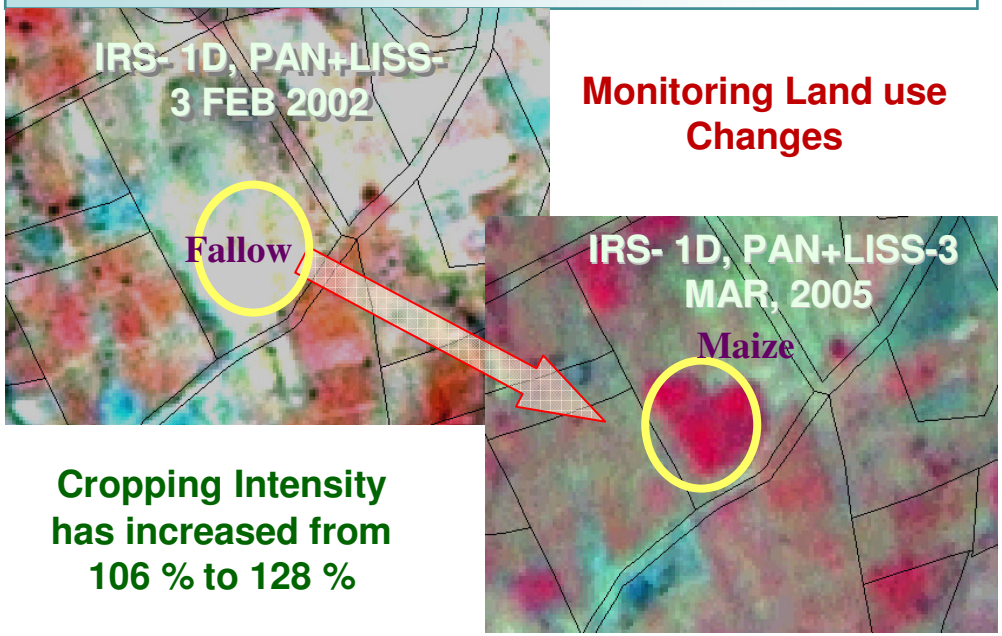
Land & Water resources development plans for 84 Mha in 175 districts in country



Participatory Land and Water Resources Management : Sujala

Monitoring & Evaluation of developmental activity in 77 sub-watersheds in 5 districts of Karnataka

- Watershed prioritization & Development using EO inputs
- Concurrent Monitoring & Mid-course correction of Implementation
- Social & Environmental Impact Assessment
- Improving the quality of life
- Conferred Globe Sustainability Research Award 2010 by the Globe Forum

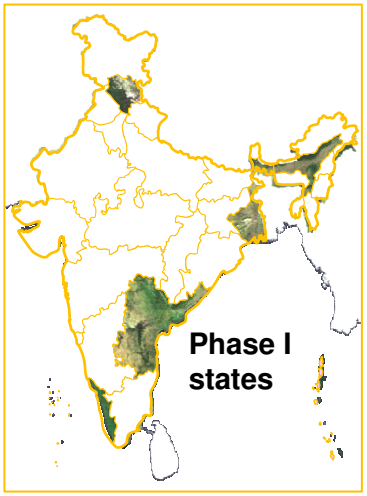


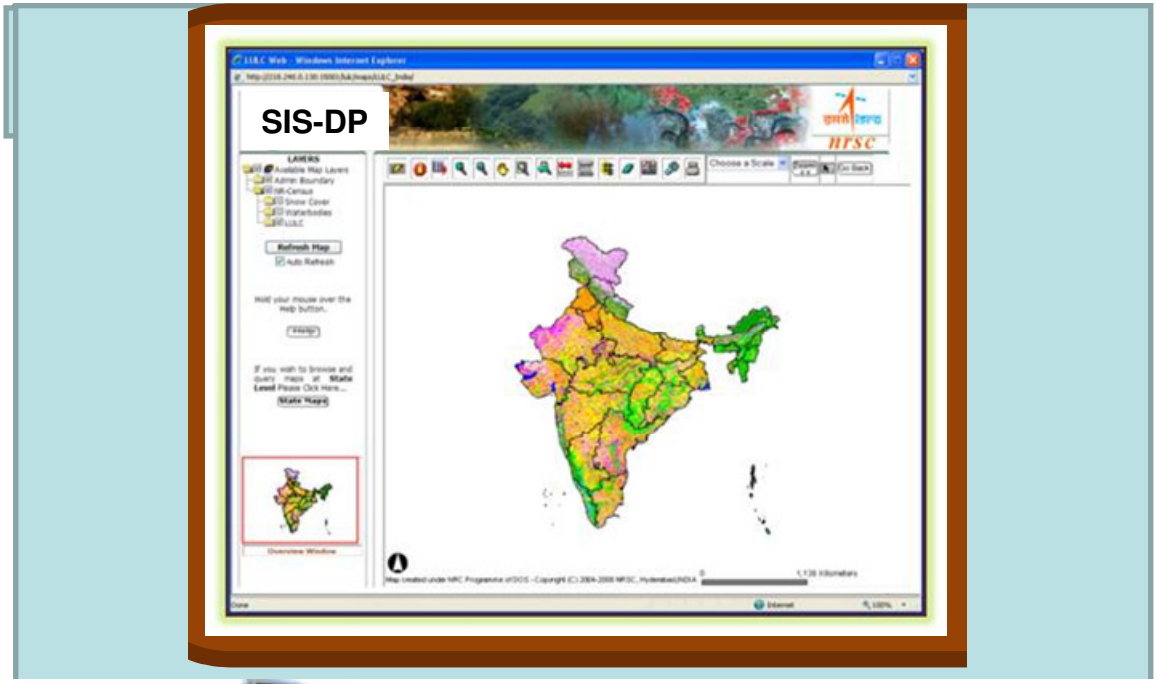
Monitoring Land use Changes

Cropping Intensity has increased from 106 % to 128 %

Space based information support for decentralized planning

ICT enabled geospatial platform using space based data for planning & carrying out developmental activities in a decentralized and speedy manner involving local bodies



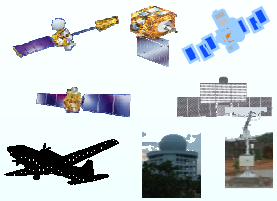


SIS-DP Objectives

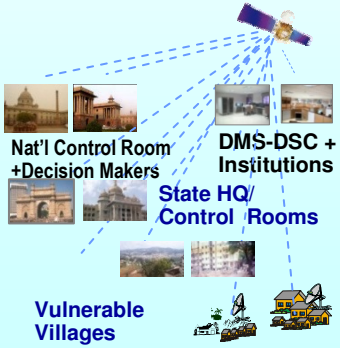
- Input for Planning at Panchayat Level
- Land & water resources information at Cadastral level
- Tools for user driven applications for speedy, accurate decision making;
- Dissemination of data through existing network
- Capacity building in state departments

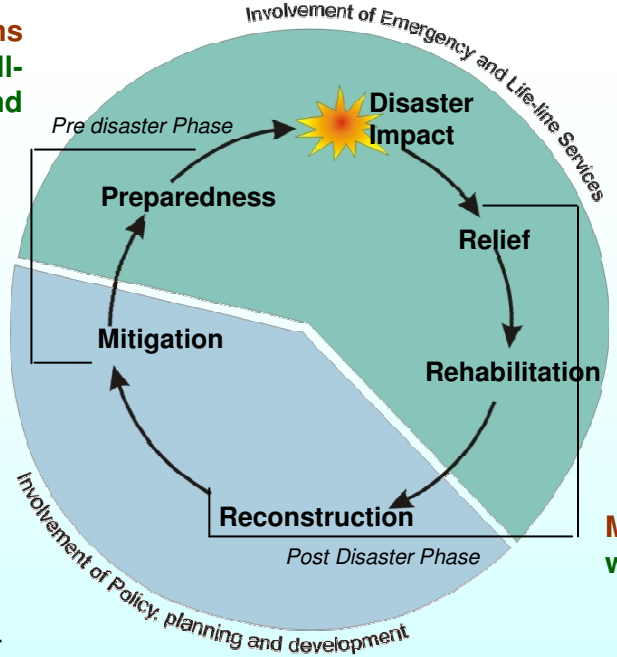
Disaster Management Support (DMS) System

Observational Systems
Satellite (GEO, LEO, All-weather), Aerial, Ground



Secured Commn
Fixed/ VPN, Mobile ..

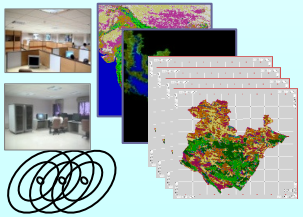




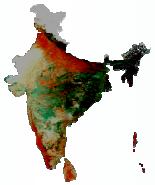
Emergency Communication
CWDS, Type D Sat phones, DDWS, Fishermen DAT…

Single-Window for Services Delivery
DMS-DSC

Multi-tier databases with query/ decision tools



R&D on early warning
Cyclone, flood, Earthquake, Landslides, Drought,….



International Activities
Charter, Sentinel Asia, UN Spider…

Disasters - Operationally addressed

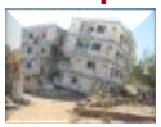
Flood

Inundation monitoring
Damage assessment
Hazard zonation
Bank erosion studies

Drought

Monthly & End-of-Season Agri Drought Assessment

Earthquake



Damage Assessment

Cyclone

Inundation mapping
Damage assessment

Forest Fire

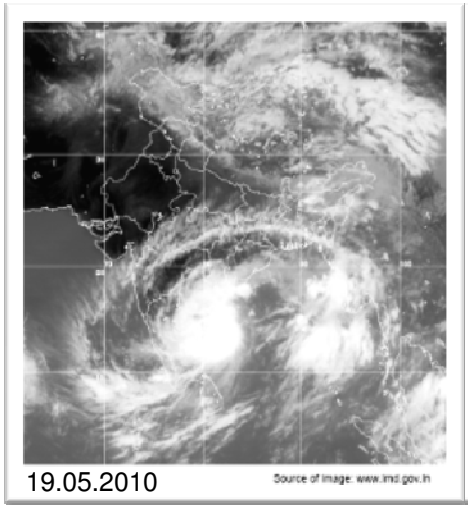
Active fire detection
Damage assessment

Landslide

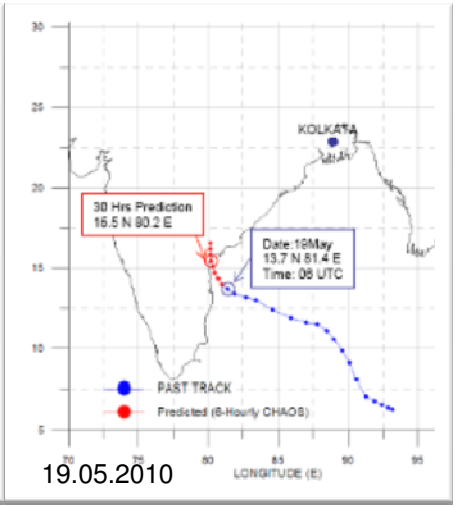
Damage Assessment
Hazard zonation

Cyclone Laila - 20th May 2010

- Formed in the Bay of Bengal on 17th May 2010
- Landfall near Bapatla in Prakasam District on May 20th ,2010
- Many coastal districts in Andhra Pradesh were worst affected.

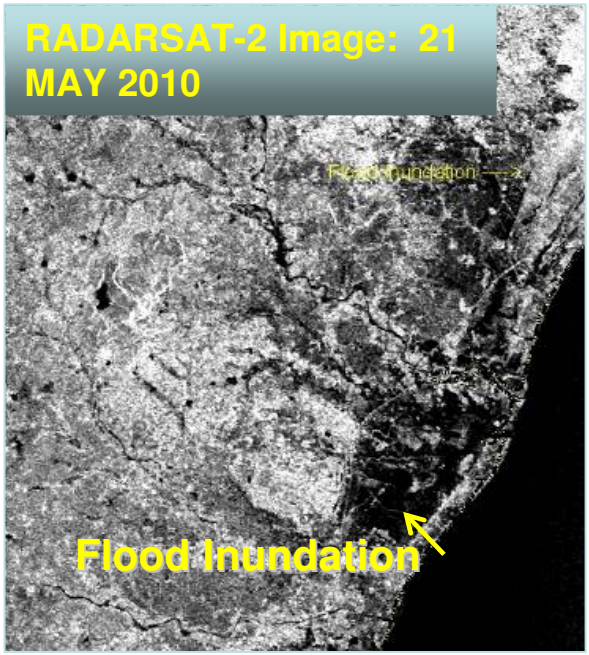


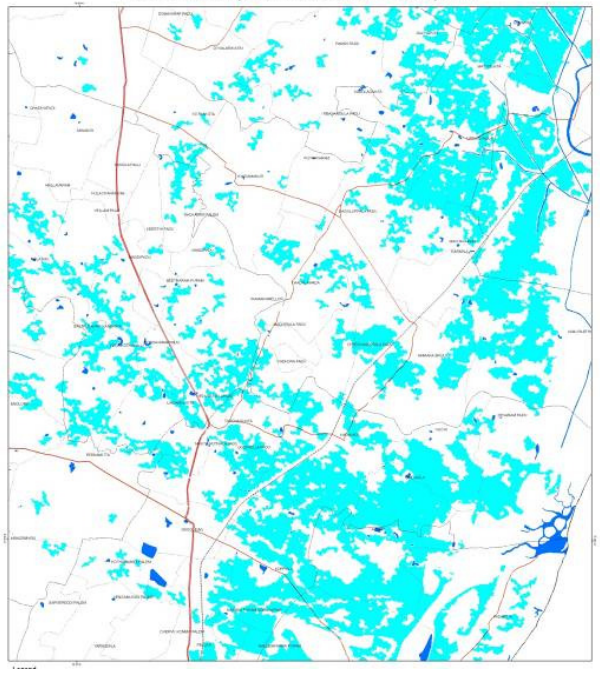
IR image of Kalpana-1



Track prediction

Inundation in Prakasam District





Inundation Statistics

#	District name	Inundated Area (ha)
1	Prakasam	39618
2	Nellore*	18734
3	Chittoor*	2768
	Total	**61121**

Note: Flood inundated districts with less than 1000 Ha are not considered.

Thank you for your kind attention

For further details:
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